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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/810,825	03/16/2001	Minyao Mao	OC0104US	6754
22849	7590	11/04/2003	EXAMINER TAMAI, KARL I	
SCOTT W HEWETT 400 WEST THIRD STREET #223 SANTA ROSA, CA 95401			ART UNIT 2834	

DATE MAILED: 11/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/810,825 <b>Examiner</b> Tamai IE Karl	<b>Applicant(s)</b> MAO ET AL. <b>Art Unit</b> 2834
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**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED. (35 U.S.C. § 133)
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b)

**Status**

1) ☒ Responsive to communication(s) filed on 08 August 2003.

2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) 1-16 and 19-21 is/are pending in the application.  
     4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5) ☒ Claim(s) 5,6,9 and 11-16 is/are allowed.

6) ☒ Claim(s) 1-4 and 19 is/are rejected.

7) ☒ Claim(s) 7,8,10 and 20 is/are objected to.

8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
     If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:  
         1. ☐ Certified copies of the priority documents have been received.  
         2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
         3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
     \* See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
     a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)

3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_                      6) ☐ Other:

**DETAILED ACTION**

***Claim Rejections - 35 USC § 112***

1. The rejection of Claim 8 under 35 U.S.C. 112, second paragraph, is withdrawn.

***Claim Rejections - 35 USC § 102***

2. The rejection of Claim 19 under 35 U.S.C. 102(b) as being anticipated by Elkuch (US 3,769,531) is withdrawn.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US 5428259) and Sugiyama et al.(Sugiyama)(JP 2000-266777). Suzuki teaches an electrostatic actuator with variable thickness electrodes (Fig. 3). Suzuki teaches the shape of the electrode determines the performance of the actuator (col. 11 lines 10-24). Suzuki does not teach thick portions on the distal end and thin portions near the base. Sugiyama teaches thick portions on the distal end and thin portions near the base to reduce capacitance variation rate. Sugiyama shows the moving and stationary wide portions have adjacent overlapping regions (fig. 1c). It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the actuator of Suzuki with the thick/thin portions of Sugiyama to reduce the capacitance variation and improve the sensitivity of the electrodes, and because Suzuki suggests that the shape/widths of the electrodes is a design parameter for determining the best actuator force (col. 11, line 10).

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki (US 5428259) and Sugiyama et al.(Sugiyama)(JP 2000-266777). Suzuki and Sugiyama teaches every aspect of the invention except the range of the electrodes being less than 4 and greater than 6 microns. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the actuator of Suzuki and Sugiyama with the electrodes being less than 4 and greater than 6 microns to optimize the performance of the actuator, and because it has been held that where the general

conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art (see *In re Aller*, 105 USPQ 233).

7. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Miller et al. (Miller)(US 6000280). Miller teaches a comb drive actuator movable between two positions relative to the base. Miller teaches the mover supported by springs between the base and the mover providing potential energy between the two positions. Miller teaches a potential applied between the moveable and stationary combs to provide motion to the moveable comb. Miller teaches every aspect of the invention except the voltage applied between the moving and stationary fingers of figures 13,14 being applied between the fingers with short and tall portions of figure 15. It would have been obvious to a person of ordinary skill in the art at the time of the invention to construct the actuator with short and tall portion (figure 15) with voltage applied across the fingers as in figures 13, 14 because Miller suggests that the voltages applied to the finger will produce up and down motion of the mover (col. 16, lines 44-46).

#### ***Response to Arguments***

8. Applicant's arguments filed 08/08/2003 have been fully considered but they are not persuasive. Applicant's arguments regarding claims 19 and 21 are moot in view of the new grounds of rejection argument. The Applicant's arguments regarding Suzuki and Sugiyama are not persuasive because Suzuki teaches springs 15 providing

potential energy between a stationary and moving positions. The Applicant's arguments regarding bistable positions are not persuasive because the limitation is not claimed.

The Applicant's arguments regarding the modification of Suzuki is not persuasive because Suzuki includes springs 15, so that no modification is required to meet the claimed limitations. The Applicant's argument that it would not be obvious to modify the electrode of Suzuki with the electrodes of Sugiyama is not persuasive because Suzuki suggests that the movement of the mover is controlled by changing the shape and width of the electrodes (col. 11, lines 14-24). Suzuki specifically teaches the shape and width are result effective variable which provide the design freedom for the actuator (col. 11, line 17). Therefore Suzuki suggests modifying the electrodes width, particularly in the shape of Sugiyama to improve the sensitivity of the electrodes.

#### ***Allowable Subject Matter***

9. Claims 5, 6, 9, and 11-15 are allowed.
10. Claims 7, 8, 10, and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

11. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl I.E. Tamai whose telephone number is (703) 305-7066. The examiner can be normally contacted on Monday through Friday from 8:00 am to 4:00 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Nestor Ramirez, can be reached at (703) 308-1371. The facsimile number for the Group is (703) 305-3432.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0956.

Karl I Tamai  
PRIMARY PATENT EXAMINER  
October 24, 2003



KARL TAMAI  
PRIMARY EXAMINER